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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,431	04/09/2001	Kenneth D. Cornett	CM03351J	6168

7590 05/15/2003

Daniel K. Nichols
Motorola, Inc.
Law Department
8000 West Sunrise Boulevard
Fort Lauderdale, FL 33322

EXAMINER

SUMMONS, BARBARA

ART UNIT PAPER NUMBER

2817

DATE MAILED: 05/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/828,431

Applicant(s)

Cornett et al.

Examiner

Barbara Summors

Group Art Unit

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— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 (three) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 2/24/03 (election)
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-56 is/are pending in the application.
- Of the above claim(s) 1-14 and 40-56 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 15-17, 19-22, 25-28 and 32-37 is/are rejected.
- ☒ Claim(s) 18, 23, 24, 29-31, 38 and 39 is/are objected to.
- ☒ Claim(s) 1-56 are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is: ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

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DETAILED ACTION

Election/Restriction

1. Applicants' election without traverse of the invention of Group II (claims 15-39 and 49-56) in Paper No. 5 is acknowledged. However, Applicants inadvertently failed to respond to the further requirement of an election of species within the invention Group II.

2. During a telephone conversation with Barbara R. Doutre on May 7, 2003 a provisional election was made without traverse to prosecute the invention of Group II/Species C (Figs. 13-16), claims 15-39. Affirmation of this election must be made by applicant in replying to this Office action.

3. Claims 1-14 and 40-56 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention (Group I and Group II/Species D), there being no allowable generic or linking claim. Election of Group II was made without traverse in Paper No. 5, and the election of Species C was made without traverse by telephone on 5/7/03.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 25 and 33-35 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 25 recites the limitations "the third support" and "the fourth support" in lines 2-3 and 5, respectively. There is insufficient antecedent basis for this limitation in the claim. Should

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claim 25 correctly depend from claim 24 instead of claim 23? For the purposes of any art rejections that may follow, the Examiner will consider claim 25 to depend from claim 24 where antecedent basis for "the third" and "fourth" supports can be found (see claim 24, lns. 5-6).

Each of Claims 33 and 35 recite the limitation "the beam" in lines 2 and 3, respectively. There is insufficient antecedent basis for this limitation in the claims. Should claims 33 and 35 correctly depend from claim 32 instead of claim 26? For the purposes of any art rejections that may follow, the Examiner will consider claims 33 and 35 to depend from claim 32 where antecedent basis for "the beam" can be found (see claim 32, ln. 3).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 15-17, 19-22 are rejected under 35 U.S.C. § 102(b) as being anticipated by Engeler et al. U.S. 3,614,678.

Fig. 30 of Engeler et al. discloses an embodiment of an electromechanical resonator device comprising: a first support member 102; and a selectively doped vibrating member 101 that resonates in a vibrational mode that has a first node, and is attached to the first support 102 at a position of the first node (see col. 12, lns. 1-4); and the selectively doped vibrating member including a first doped conducting region 106 (see col. 12, lns. 6-10 with col. 5, lns. 22-26 and 64-68) extending from the first support 102; and an insulating region (i.e. between conductors

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106 and 107). Regarding claims 16 and 17, the selectively doped vibrating member 101 comprises a body of single crystal semiconductor material (see e.g. col. 3, lns. 70-74) and the support comprises a top layer of single crystal semiconductor material contiguous with the body of single crystal semiconductor material (see e.g. col. 12, lns. 5-6 with col. 4, lns. 40-43 and 73 and a side view shown in Fig. 7). Regarding claims 19-21, the selectively doped vibrating member 101 is a beam resonating in a flexural vibration mode that includes the first node at first support 102 and a second node at the attachment area of a second support 104 (see col. 12, lns. 1-4) wherein the first doped conducting region 106 extends from the first support 102 to the second support 104. Regarding claim 22, the first support is considered to be 102 and is connected to a first/right longitudinal side, but the second support is now considered to be 105 (note that claim 22 does not depend from claim 21), and second support 105 is attached to the second/left longitudinal side, a third support 103 is attached to the second/left longitudinal side at the first node, and a fourth support 104 is attached to the first/right longitudinal side at the second node.

8. Claims 26-28, 32-37 are rejected under 35 U.S.C. § 102(b) as being anticipated by Warren et al. U.S. 3,490,056.

Figs. 1 and 4 of Warren et al. disclose an electromechanical resonating system comprising: a vibrating member 11 capable of resonating in a vibrational mode that includes a first electrode 19 at a location of a first anti-node of a first phase [i.e. up in Fig. 1(b)] and a second electrode 21 at a location of a second anti-node of a second phase opposite to the first phase [i.e. down in Fig. 1(b)]. Regarding claims 27, 28 and 34, a circuit 23 [Fig. 1(a)] provides first and second

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differential inputs coupled to the first electrode 19 and to the second electrode 21 to propagate a signal through the vibrating member 11 (see col. 3, lns. 8-14). Regarding claim 32, the vibrating member is a beam vibrating in a flexural mode with two anti-nodes (at the locations of electrodes 19 and 21) and one node 17 (see col. 3, lns. 3-6). Regarding claim 33, the longitudinal center of the beam 11, corresponding to the position of the node 17, is inherently the center of gravity of the beam 11 because it is a planar (i.e. uniform) thin rectangular beam (see col. 2, lns. 69-71). Regarding claim 35, supports are coupled to the beam 11 at the node 17 on each side of the beam. Regarding claims 36 and 37, the dotted line in Fig. 1(b) shows that the beam 11 is capable of vibrating in a flexural mode with four anti-nodes and three nodes [see col. 3, lns. 14-18].

Allowable Subject Matter

9. Claims 18, 23, 24, 29-31, 38 and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 25 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. § 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or fairly suggest an electromechanical resonating device having each of the recited features and arranged in the recited manners, specifically having the recited materials (claim 18); the recited number of nodes, supports and/or doped conducting

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regions (claims 23-25); a differential amplifier (claim 29); selectively doped regions combined with the electrodes at the anti-nodes (claims 29-31); or sets of electrodes at a plurality of first anti-nodes and a plurality of second anti-nodes (claims 38 and 39).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nguyen et al. U.S. 6,249,073 discloses a resonator beam operating in a flexural mode with electrodes 50 and 51 (see Fig. 8) coupled to a differential driving circuit and located at the anti-nodes of the resonator beam.

Seefeldt et al. U.S. 6,118,164 discloses an electromechanical resonator having an electrode 224a (see Fig. 20) formed on the resonator beam 52 by doping (see col. 4, lns. 52-54

Frey et al. U.S. 6,489,864 shows an electromechanical resonator 8 operating in a flexural mode (see Fig. 2) with electrodes 2 and 3 at the anti-nodes 12 and 13 (see col. 4, lns. 22-32).

Newell U.S. 3,634,787 also discloses a flexural mode beam resonators (see Figs. 6 and 7).

13. Any inquiry concerning this communication should be directed to Barbara Summons at telephone number (703) 308-4947, FAX no. (703) 308-7724, receptionist's no. (703) 308-0956, Supervisory Examiner Bob Pascal (703) 308-4909.



Barbara Summons
Primary Examiner
Art Unit 2817

bs
May 12, 2003